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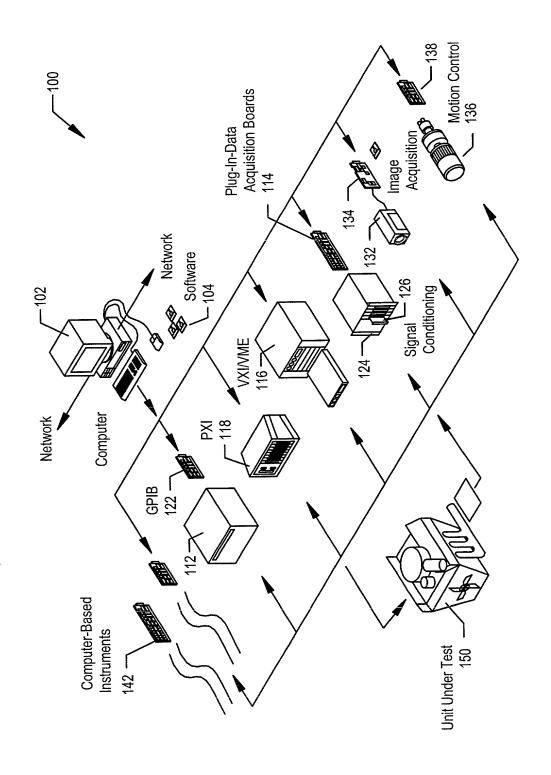


FIG. 1A

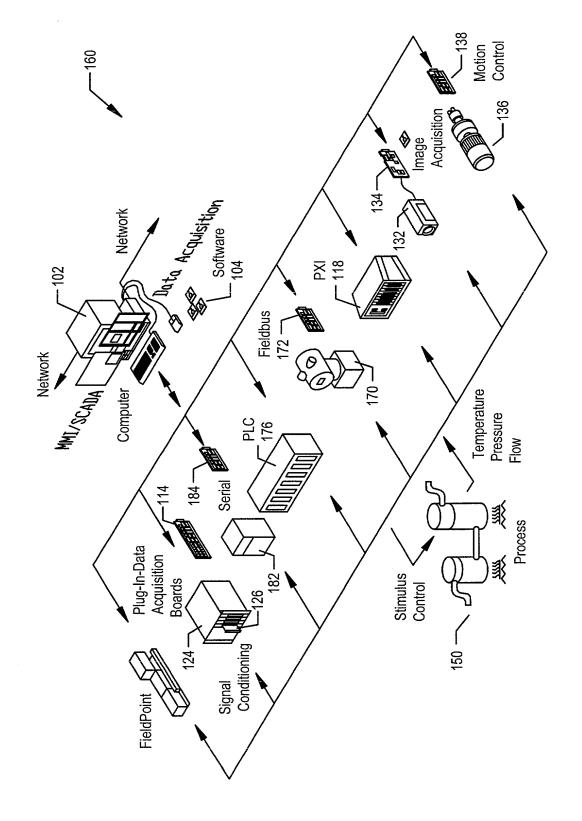


FIG. 1B

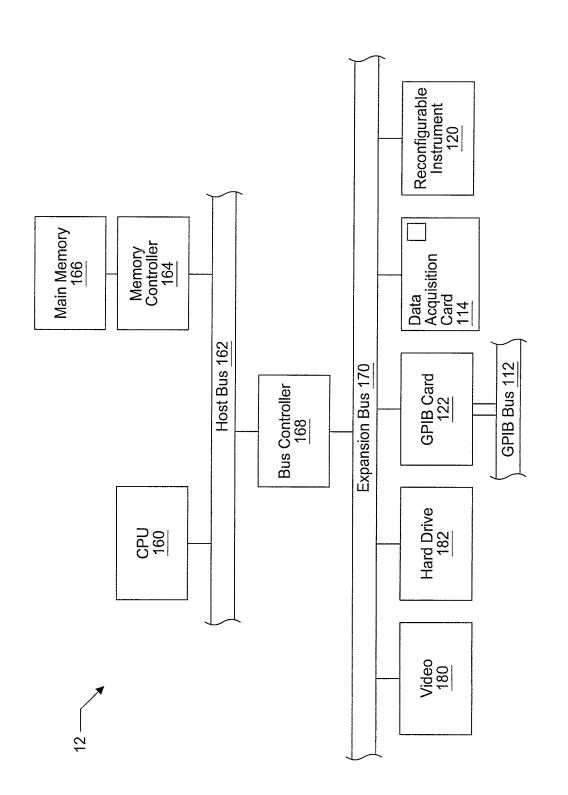


Figure 2

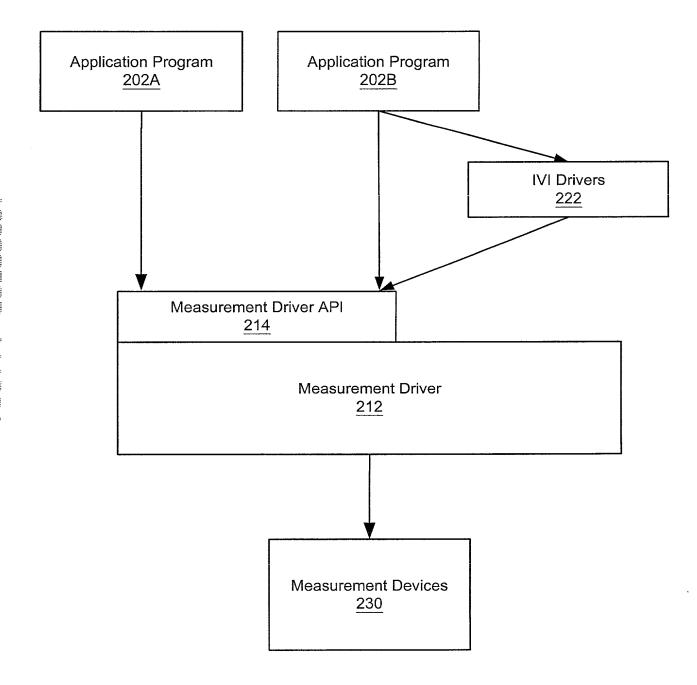


Figure 3

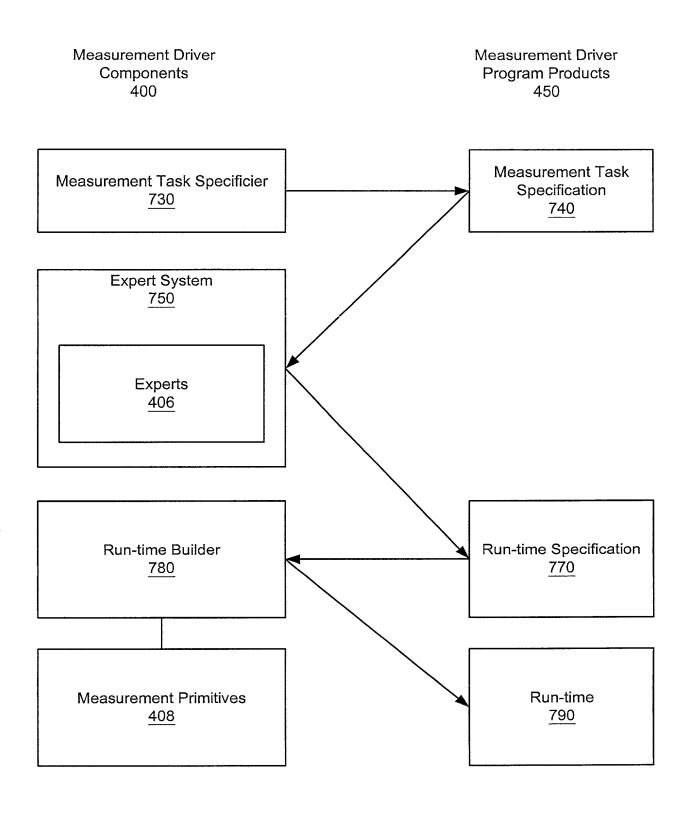


Figure 4

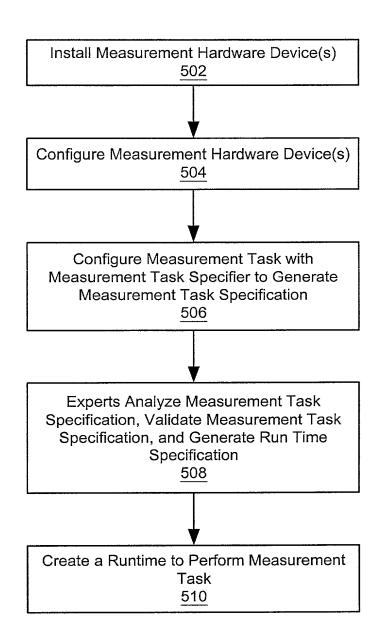
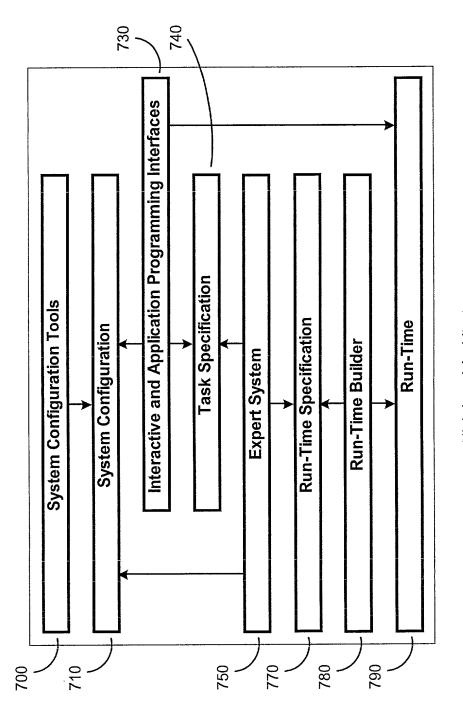


Figure 5



High-Level Architecture

Figure 6

Task Specification 740 stored in 712 extends 742 Measurements MSOs MIO MSOs MXS measurements. specification produces Interactive and Application Programming to Measurements to Measurements **728** API for LabVIEW MIO Extensions API for LabVIEW MIO Extensions Measurements Measurements API for C API for C extends extends 734 Measurements API for Measurement Studio Tools for Visual Basic extends Interfaces 730 **724** V 714 Measurements API MIO Extensions to for Measurement Studio Tools for **MIO Configuration** Studio Tools for Visual C++ Measurements API Measurements Configuration for Measurement Tool Plug-in Visual C++ extends extends <u>|</u>0 configuration retrieves system 902 708 System Storage Measurements MIO System Configuration Configuration System extends stored in Tools 710 MXS configuration produces 704 Configuration DAQ MAX plugs in Provider System Tools MAX

System Configuration and Task Specification

Figure 7A

Measurements API for Measurement Studio Tools for Visual Basic

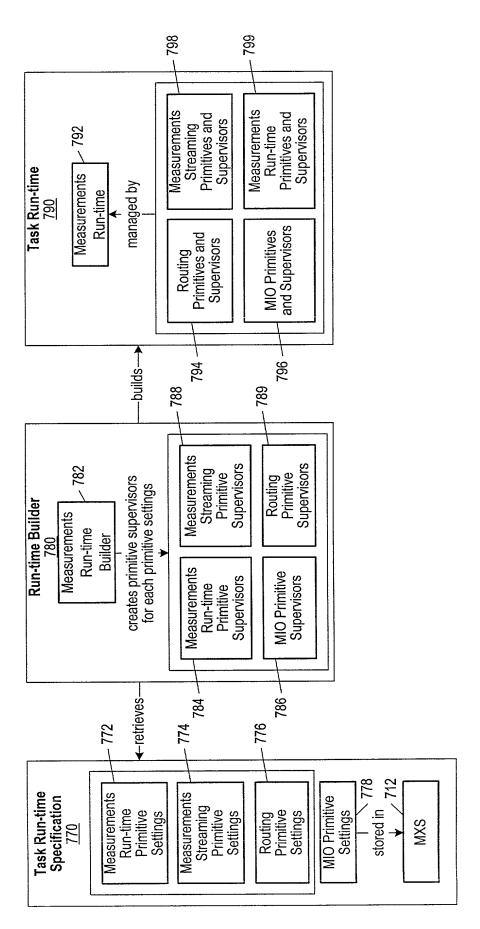
MIO Extensions to

Compiling Task Specification to Task Run-time Specification

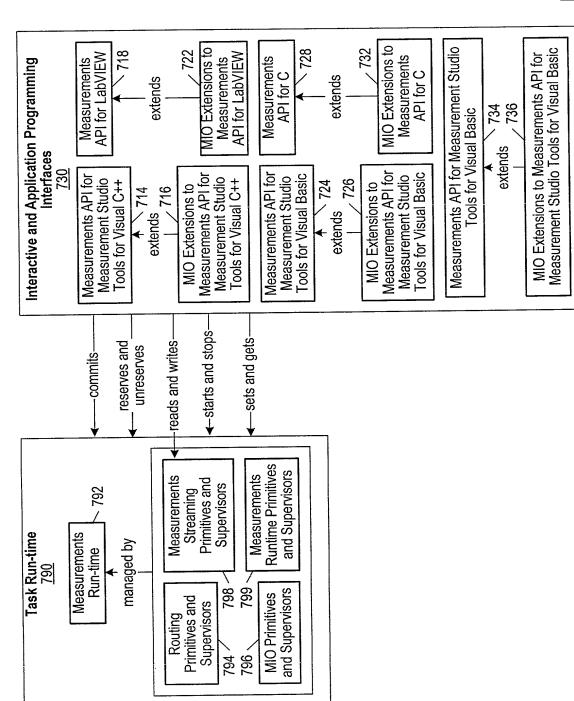
772 9// 778 stored in 712 Measurements Run-time Primitive Settings Task Run-time Measurements MIO Primitive Specification Streaming Primitive Settings Settings Routing Primitive Settings MXS produces → 768 99/ 756 Routing Expert Registrations Routing Experts Measurements Measurements Streaming Expert Registrations Streaming Experts Expert Registration Storage refers to for matching experts to the task specification registers with 759 stored in 712 Measurements Expert Library **Expert System** MXS Measurements Run-time Expert Measurements MIO Expert Registrations Registrations **MIO Experts** Run-time Experts 762 -—compiles— 752 -754 retrieves for 764 making decisions System Configuration stored in 712 stored in 712 extends 742 90Z \ 708 Task Specification Measurements MSOs System Configuration Measurements MIO System Configuration MIO MSOs extends Storage MXS MXS 710

211

Building Task Run-time from Task Run-time Specification

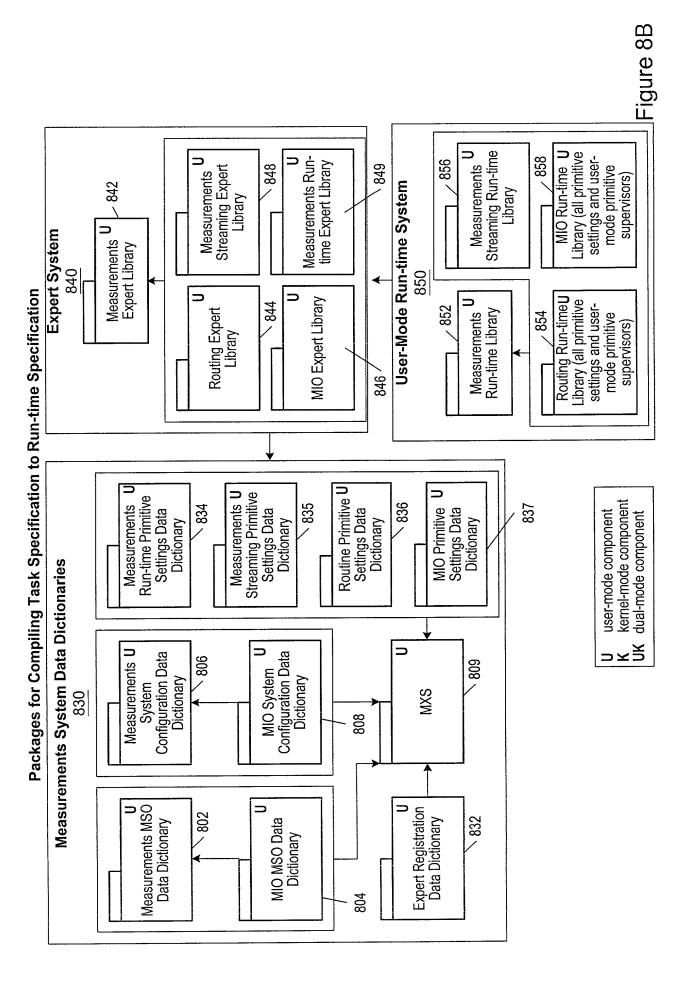


Executing Tasks



for Measurement Studio Tools for Visual C++ Library Measurements API U Measurements API U MIO Extensions to U Studio Tools for Visual Basic Library Studio Tools for Visual Measurements API for MIO Extensions U Measurement Studio Tools for Visual C++ 829 to Measurements API × 828 **824** 825 for Measurement for Measurement Basic Library Library **API Libraries** 820 MIO Extensions to Measurements API for LabVIEW Library MIO Extensions to Measurements API Measurements API for LabVIEW Library Measurements API × 826 827 823 822 for C Library for C Library Configuration Data Dictionary Configuration Data Dictionary Measurements U 908 < 808 **MIO System** 803 System Data Dictionaries 800 kernel-mode component dual-mode component user-mode component MXS Measurements MSO 802 MIO MSO Data Dictionary Data Dictionary 804 그 ㅈ 궂 System Configuration Tools \supset DAQ MAX Provider 812 814 MAX 810

Packages for System Configuration and Task Specification



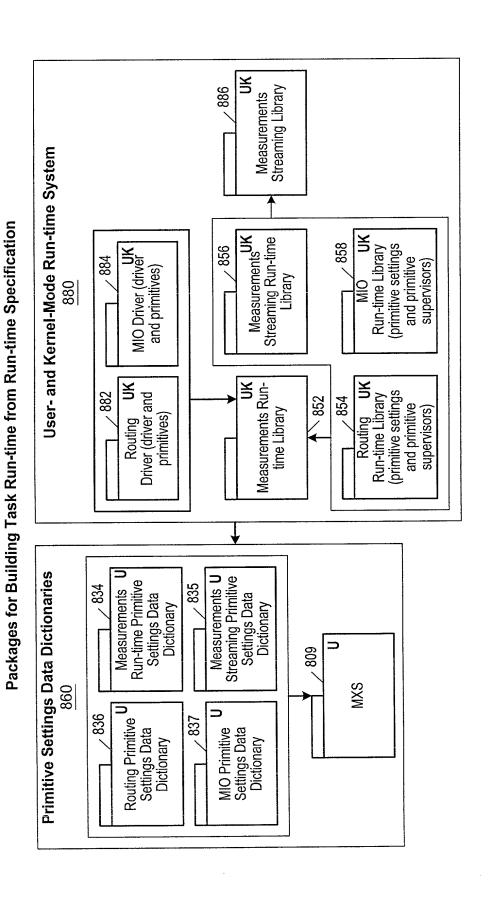
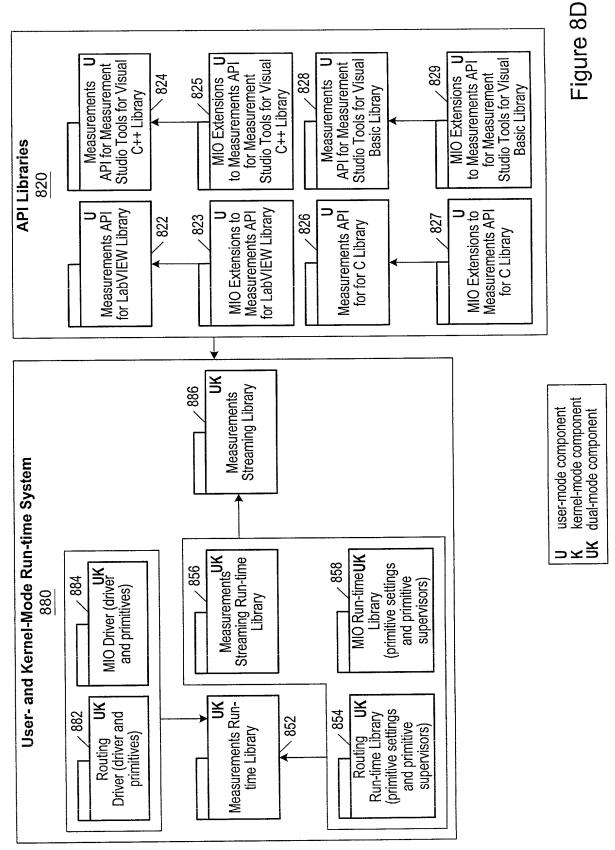


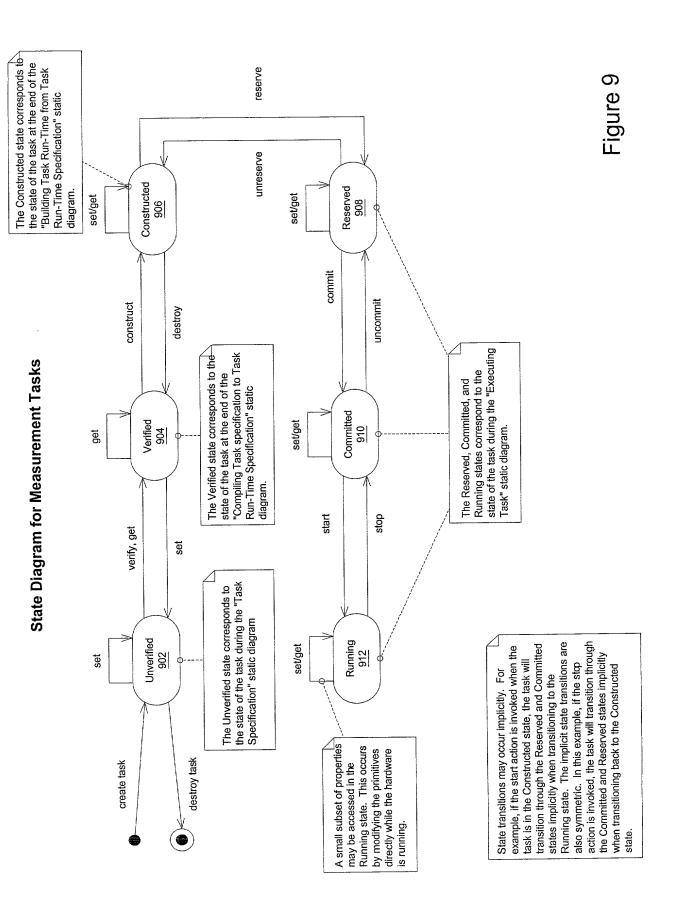
Figure 8C

U user-mode component
K kernel-mode component
UK dual-mode component

Packages for Executing Task Run-time



desperant accept desperants



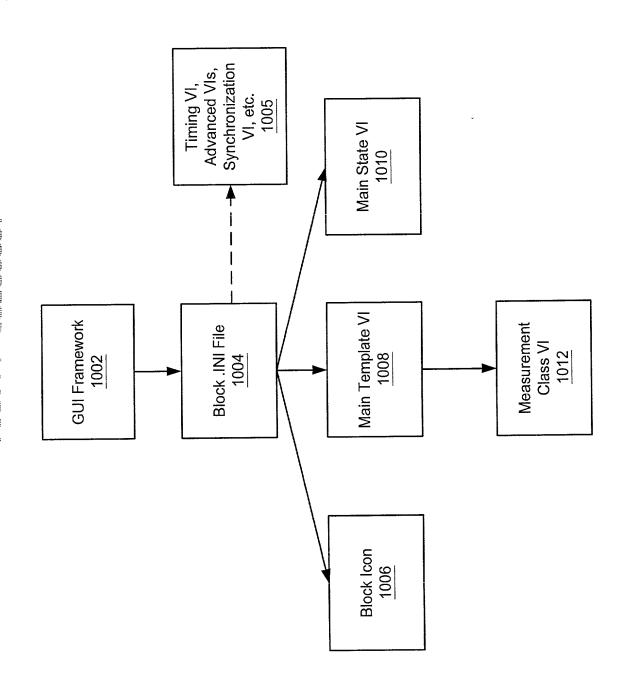


Figure 10

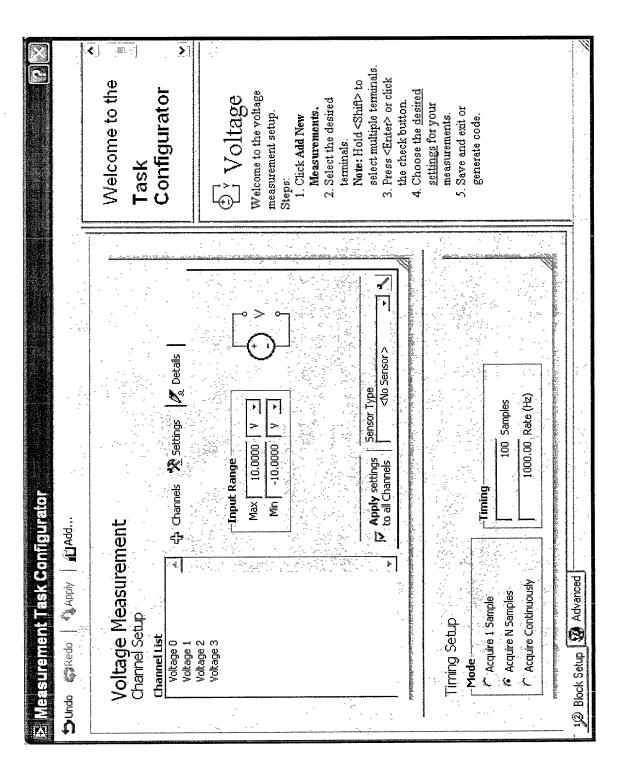


Figure 11

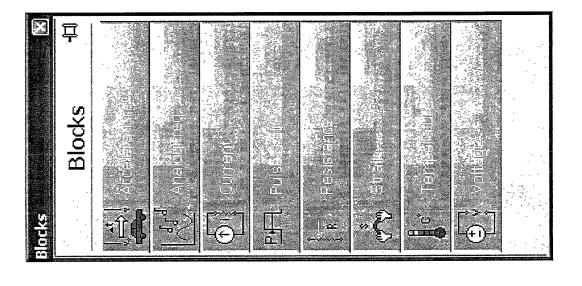


Figure 12A

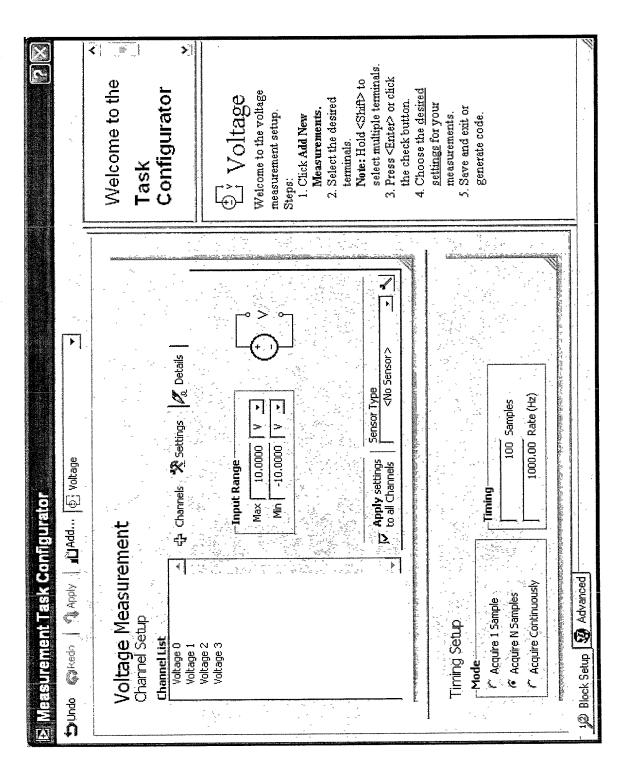


Figure 12B

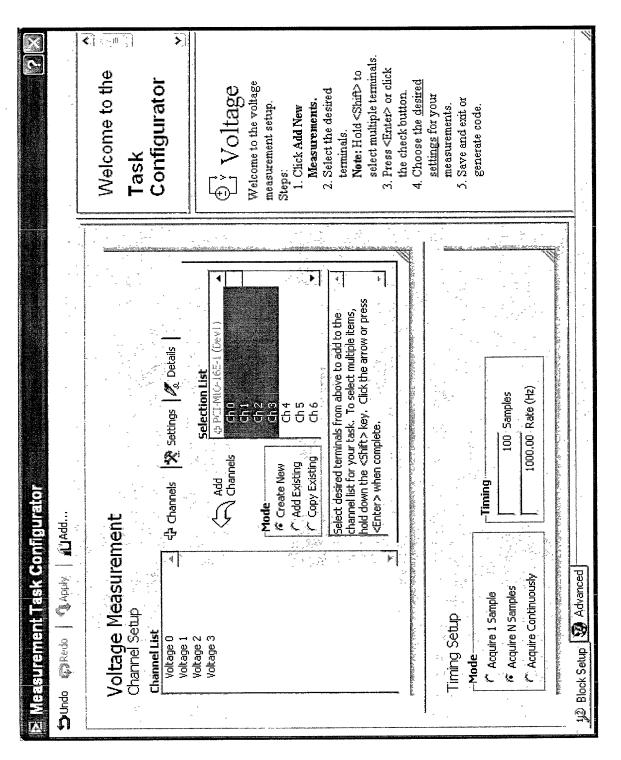


Figure 12C

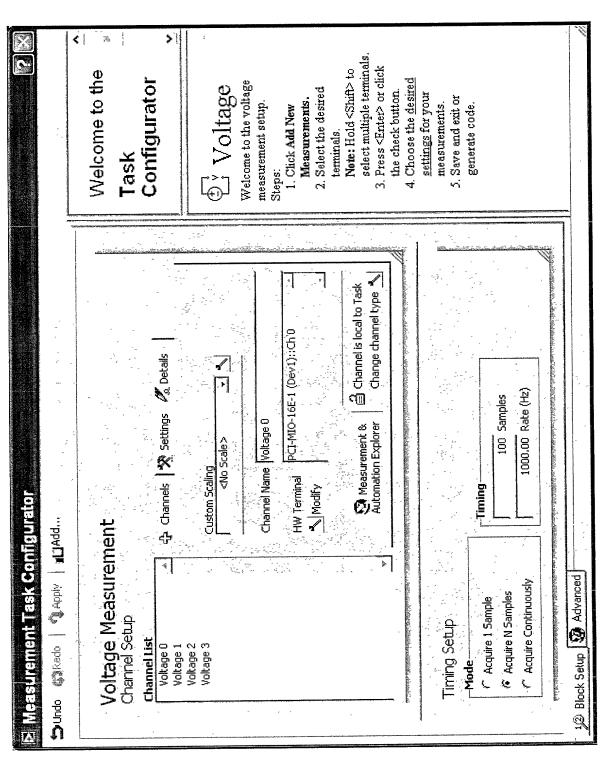


Figure 12D

	Welcome to the Task Configurator	Welcome to the voltage measurement setup. Steps: 1. Click Add New Measurements. 2. Select the desired terminals. Note: Hold «Shift» to select multiple terminals. 3. Press «Enter» or click the check button. 4. Choose the desired settings for your measurements. 5. Save and exit or generate code.
⊠ Measurement Task Configurator ⊜undo ≪aRedo % Apply ДЭAdd	Task Data Scaled ★ Data Format Waveform ★ Data Type Advanced Task Stream to Disk Configuration	File Path #EC:\MyData\data.bin \top\ Post to the Internet URL http://localhost.MyData URL http://localhost.MyData URL http://localhost.MyData URL http://localhost.MyData URL http://localhost.MyData Triggering Triggering Trigger Type Pre-Trigger Samples 0 Pre-Trigger Samples 0 Pre-Trigger Samples 0 Ingger Type 0 Source Edge 0 Outputal Edge 1 Pre-Trigger Samples 0 Counce Cou

Figure 13

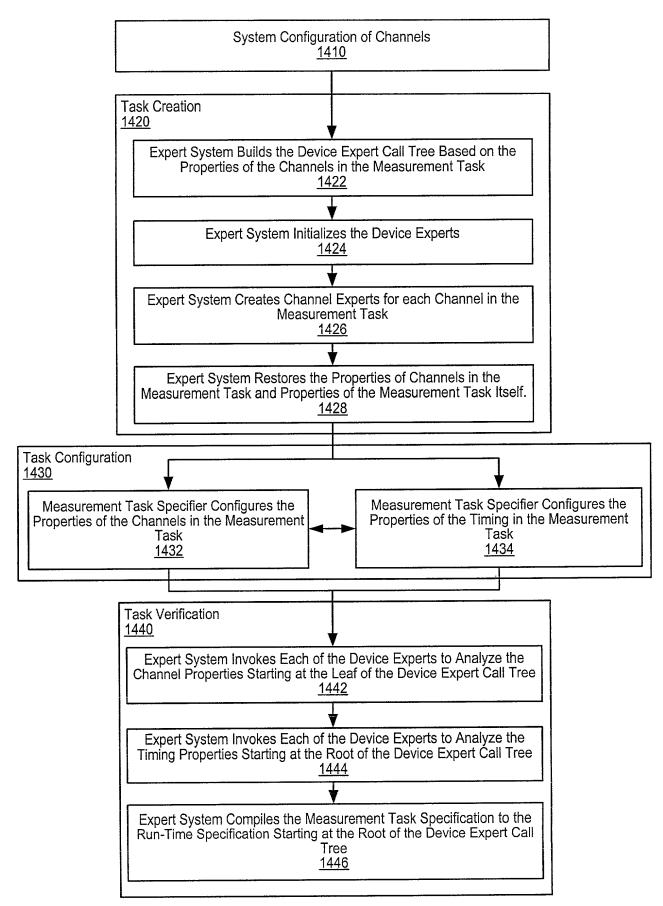


Figure 14

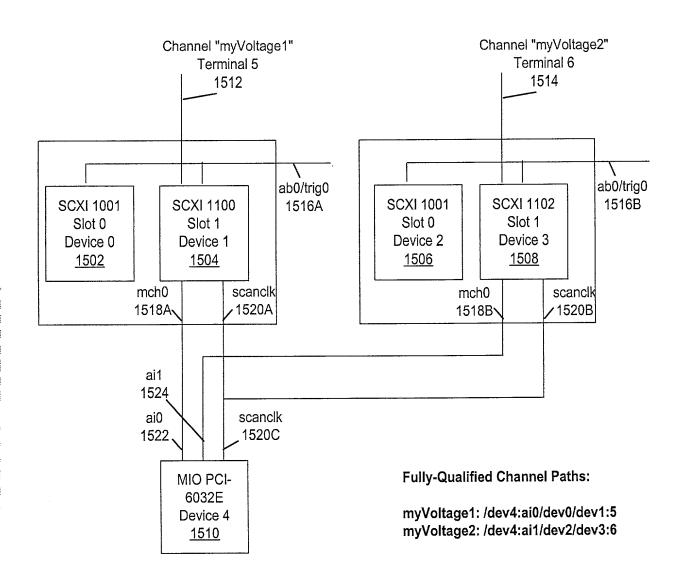
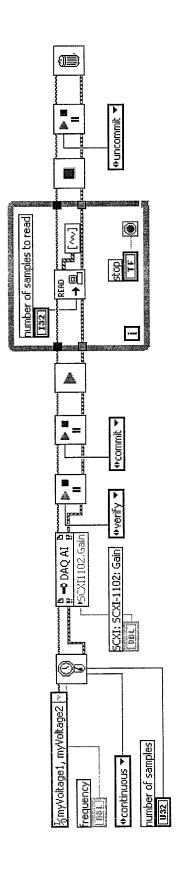
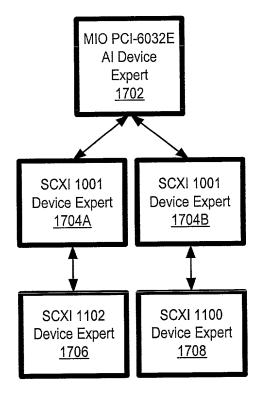


Figure 15



Voltage On Two Channels with Two SCXI Modules in Two SCXI Chassis Connected to an MIO DAQ Device

Figure 16



Create Device Expert Call Tree

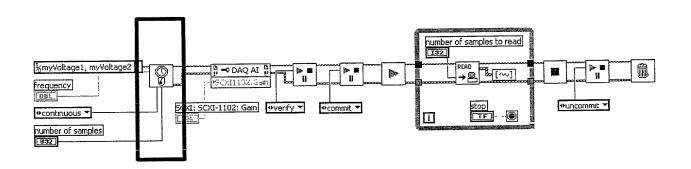
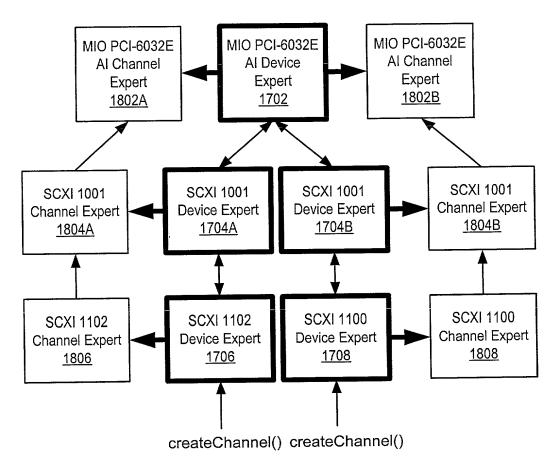


Figure 17



Create Channel Experts

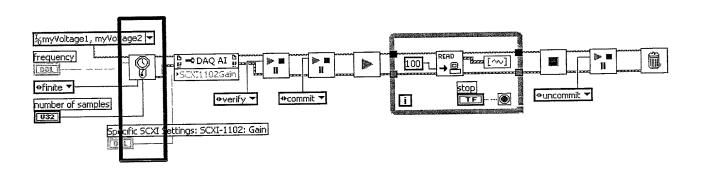
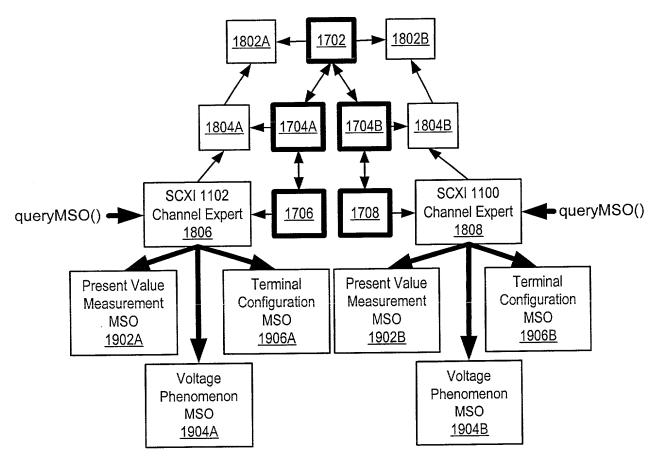


Figure 18



Deserialize Named Channel MSOs

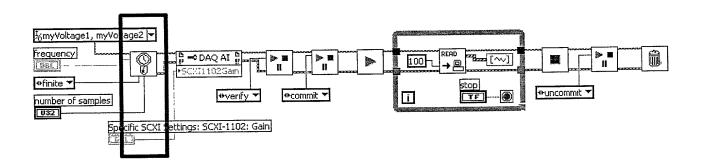
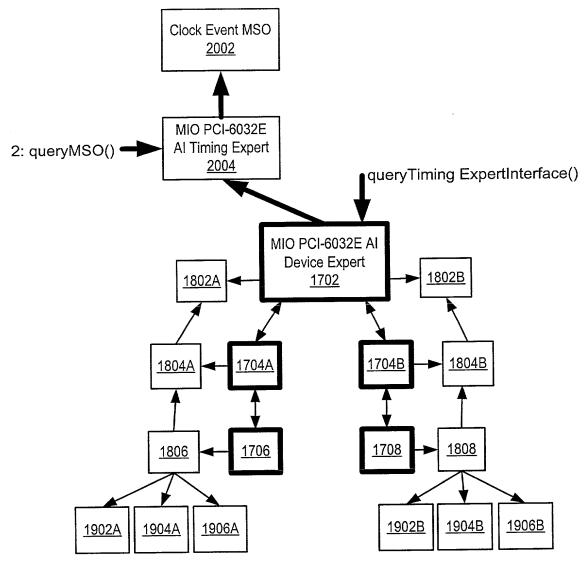


Figure 19



Configure Timing Experts

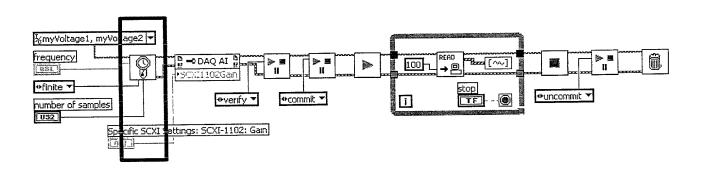
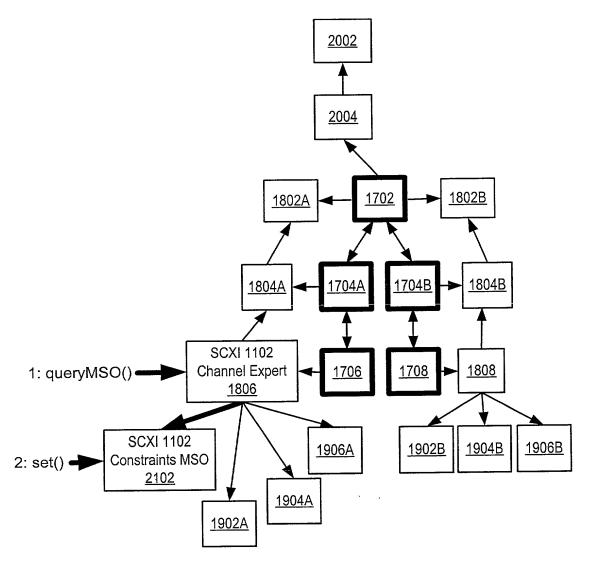


Figure 20



MSO Set Calls

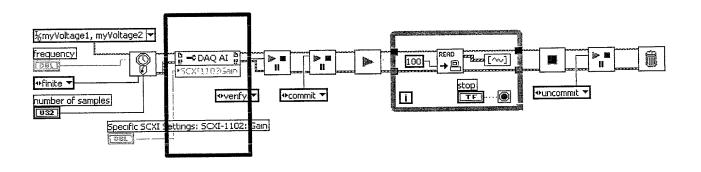
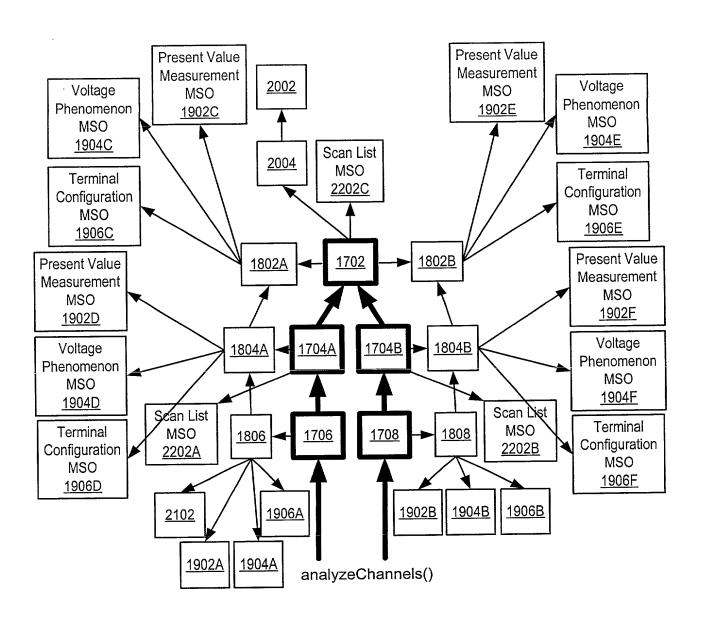


Figure 21



Analyze Channels

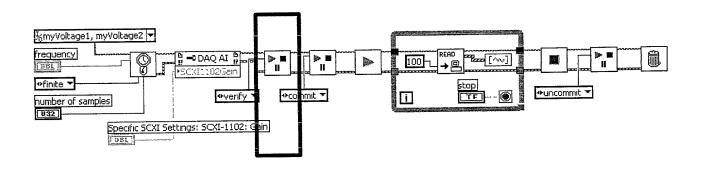
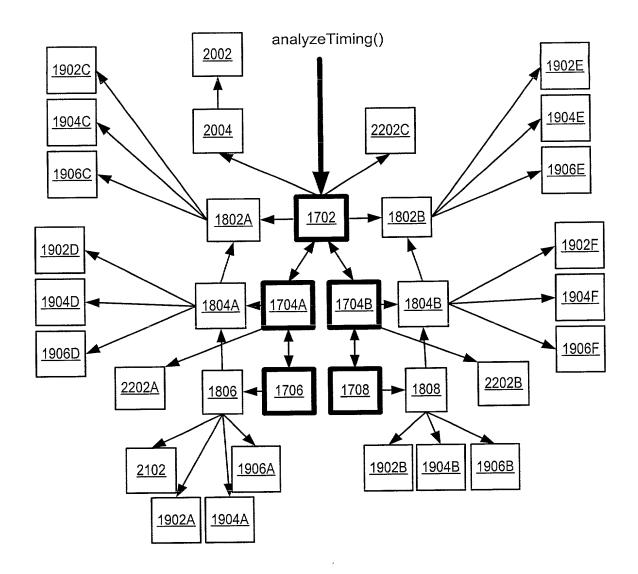


Figure 22



Analyze Timing

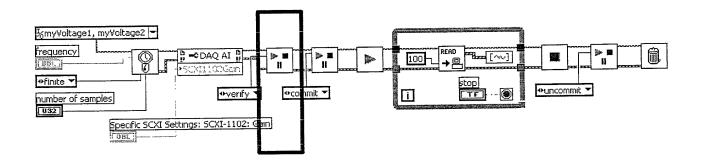
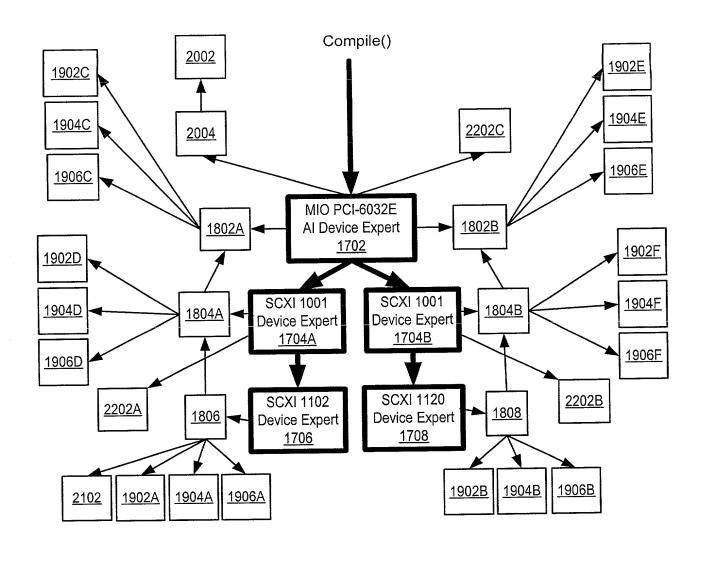


Figure 23



Compile

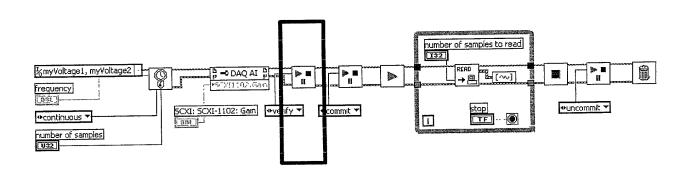
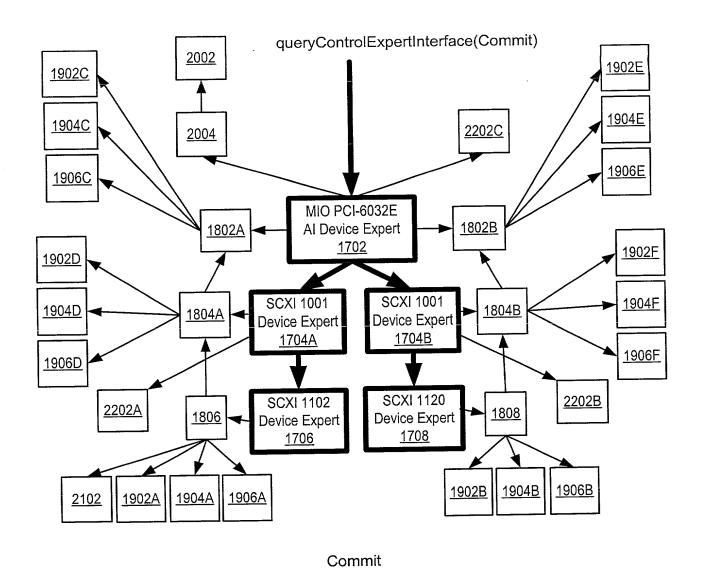


Figure 24A



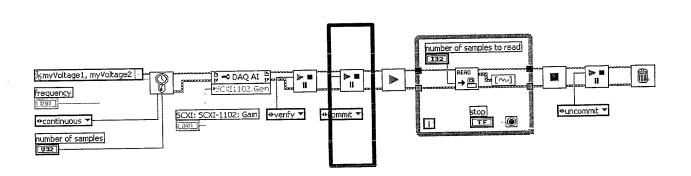
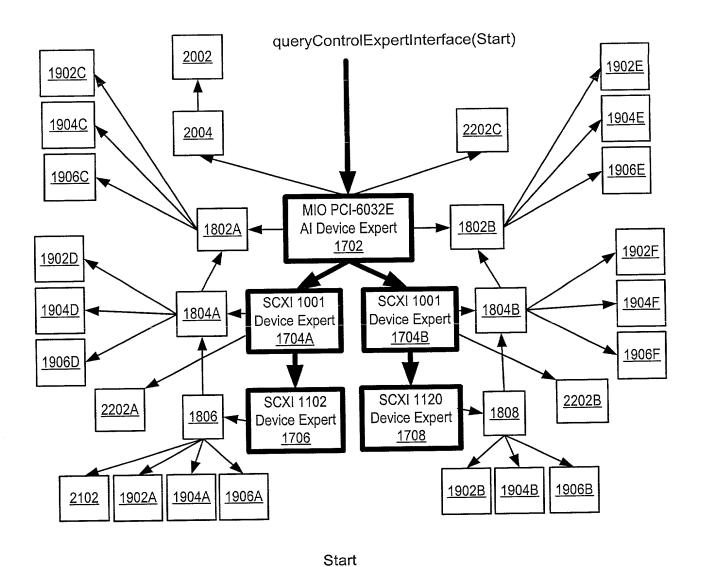


Figure 24B



Frequency

Continuous

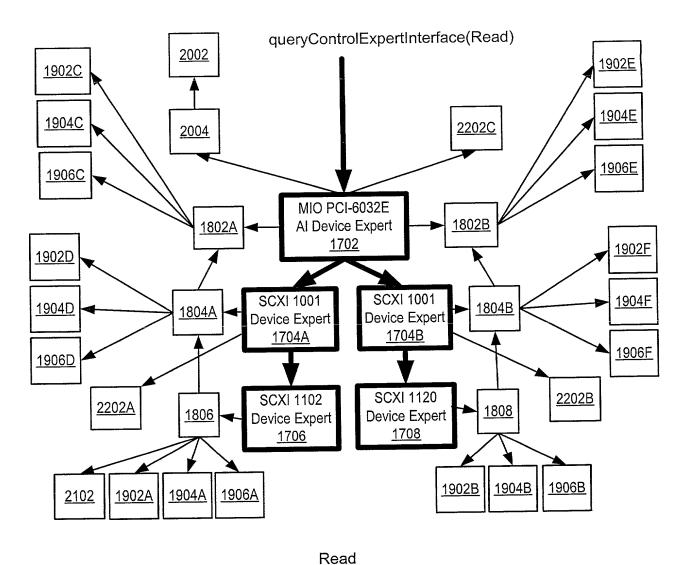
Continuous

Tumber of samples to read

Continuous

Frequency

Figure 24C



Reau

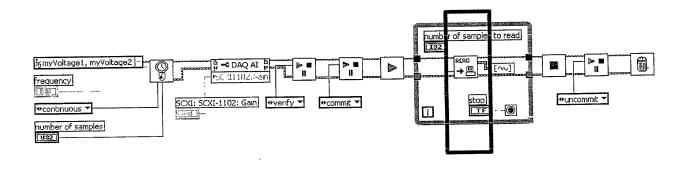
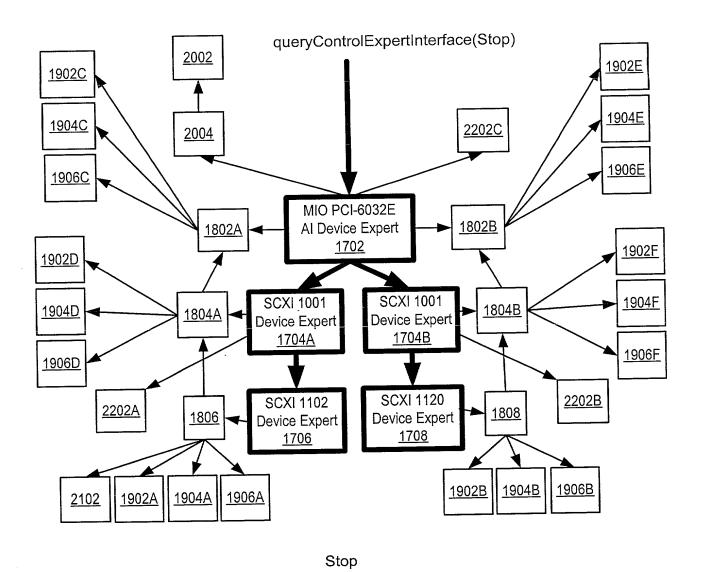


Figure 24D



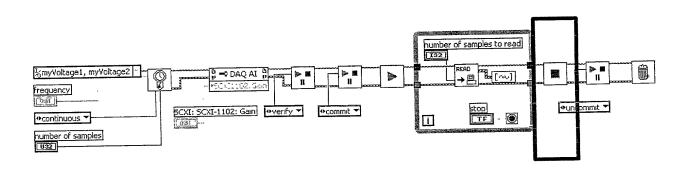
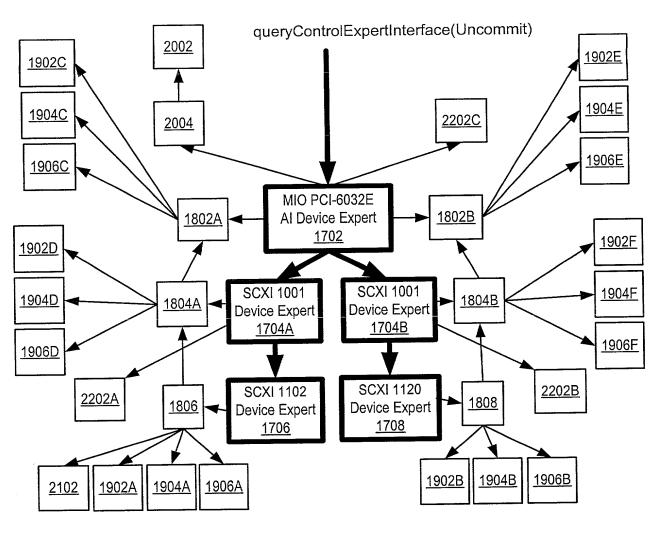


Figure 24E



Uncommit

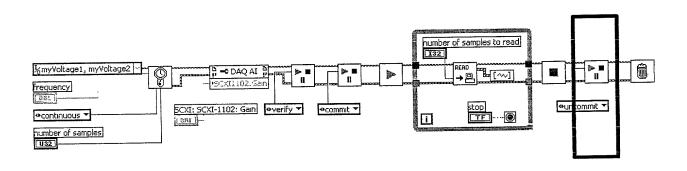
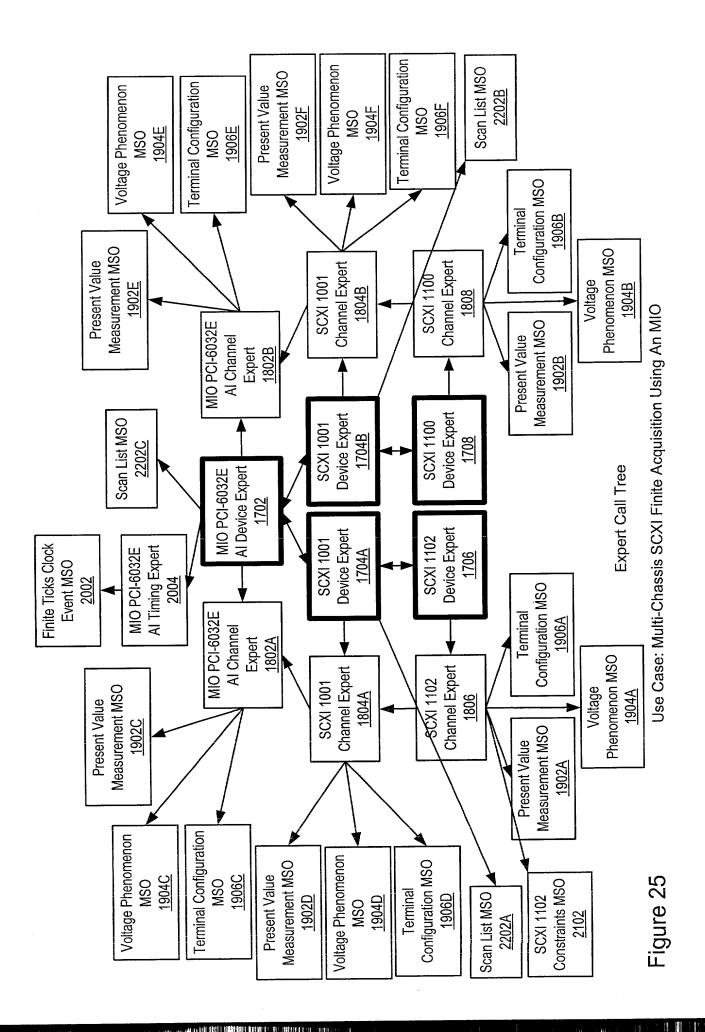


Figure 24F

Halling to the



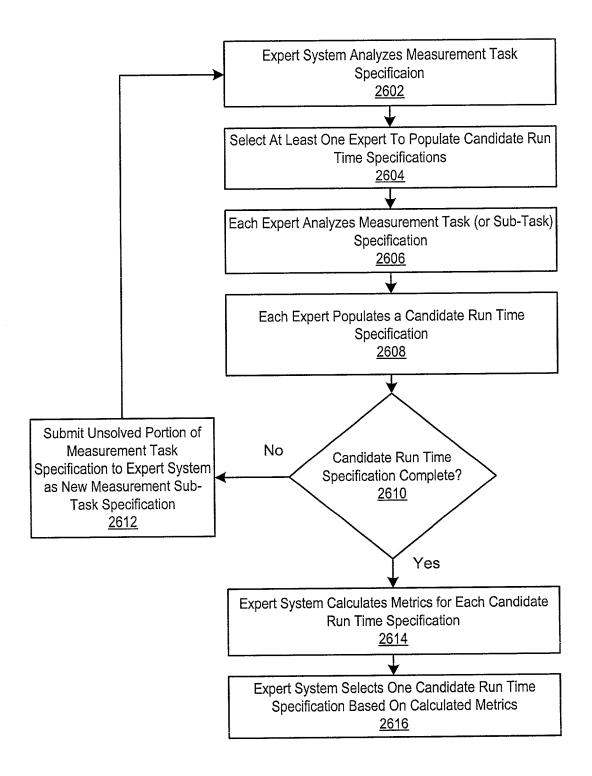


Figure 26

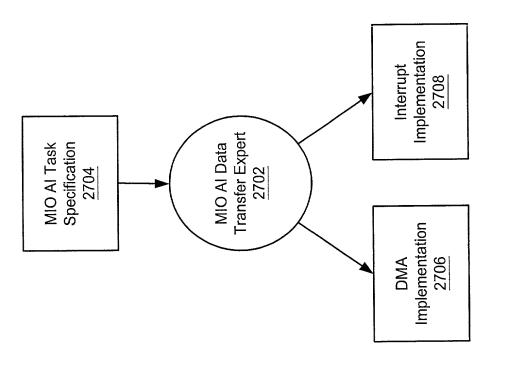


Figure 27

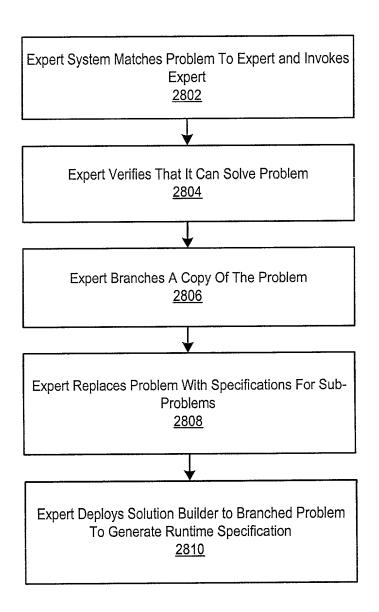


Figure 28

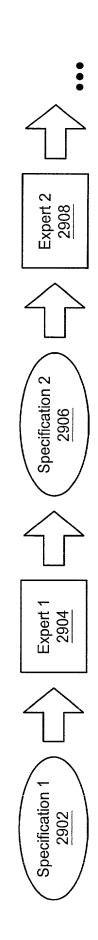


Figure 29

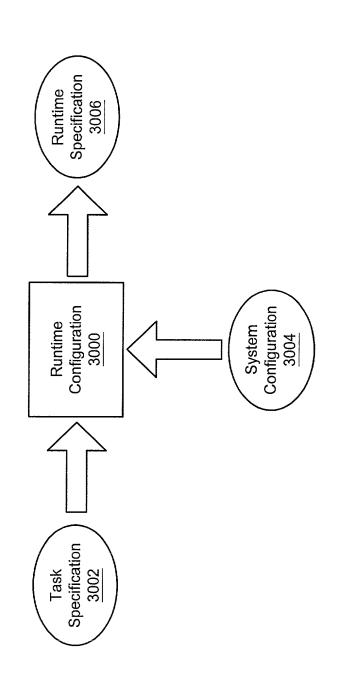


Figure 30

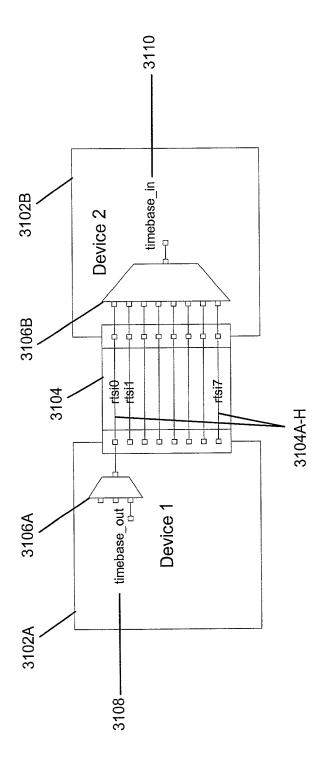


Figure 31

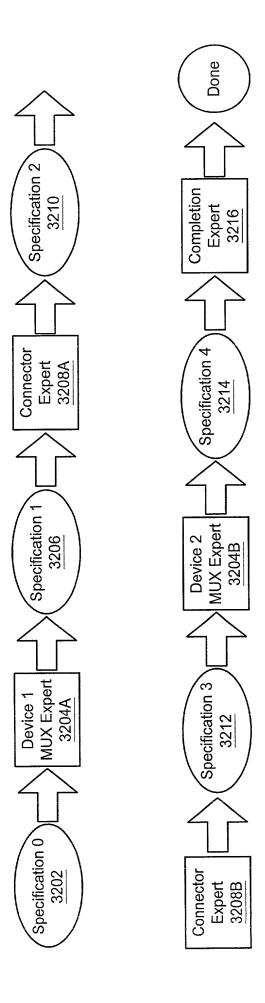


Figure 32

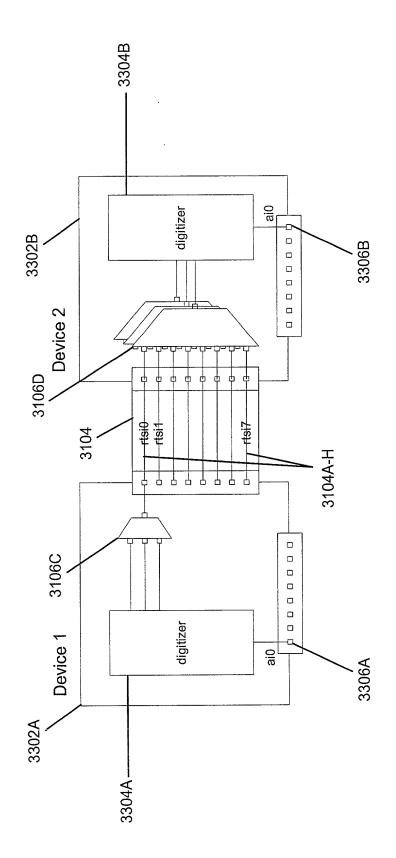


Figure 33

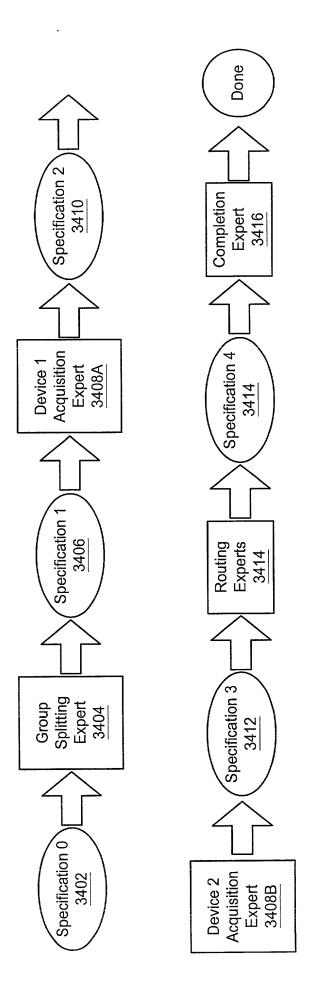


Figure 34

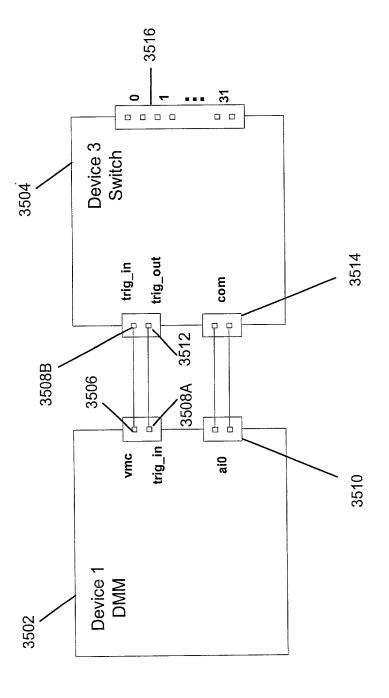


Figure 35

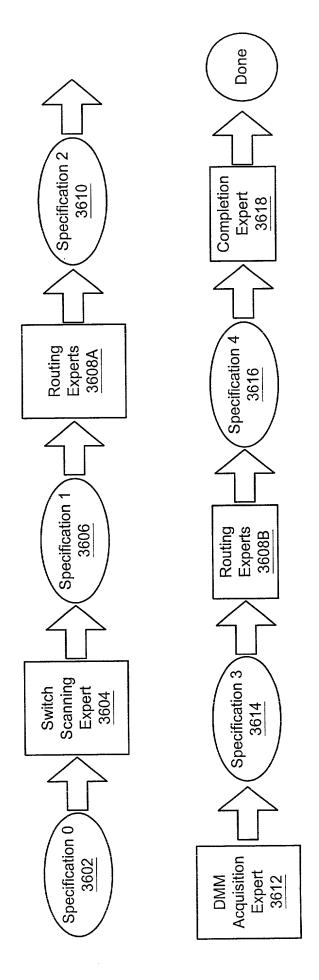


Figure 36

dlin

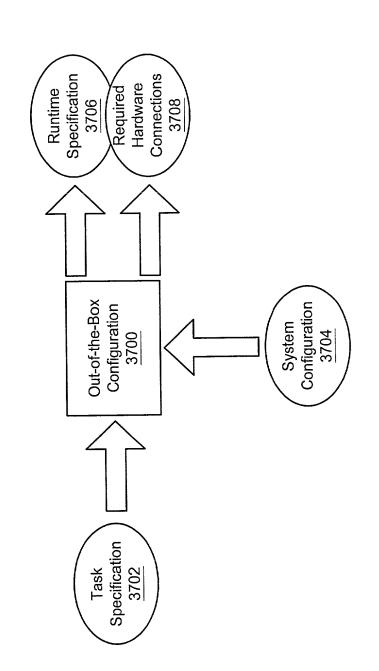


Figure 37

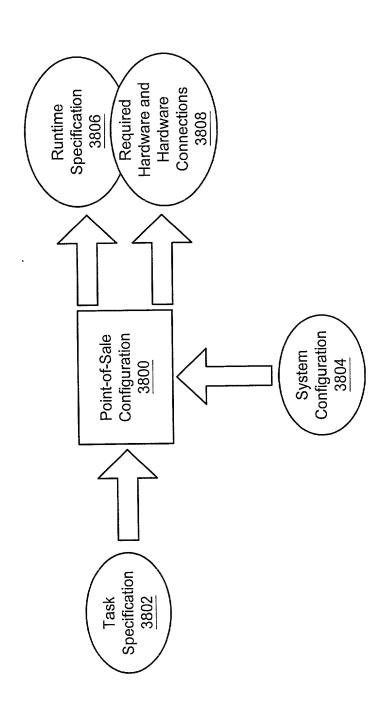
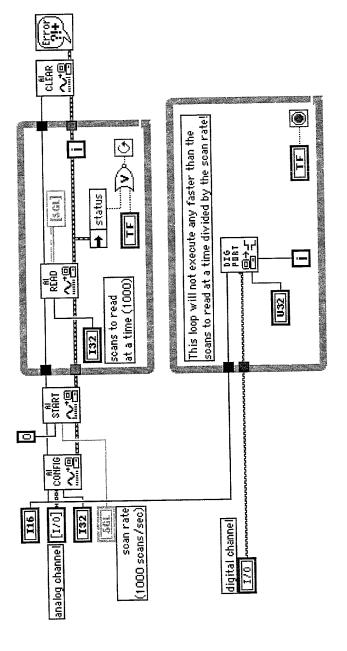


Figure 38

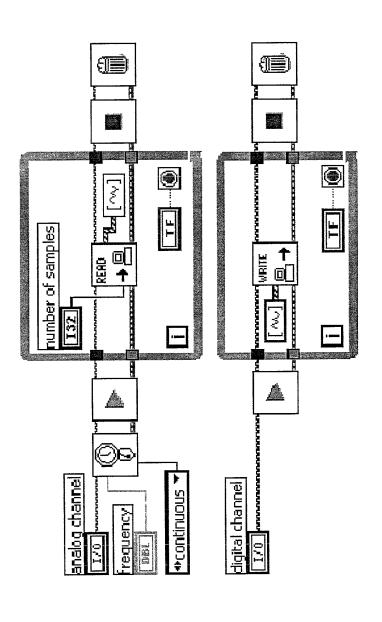
1 188 - 8

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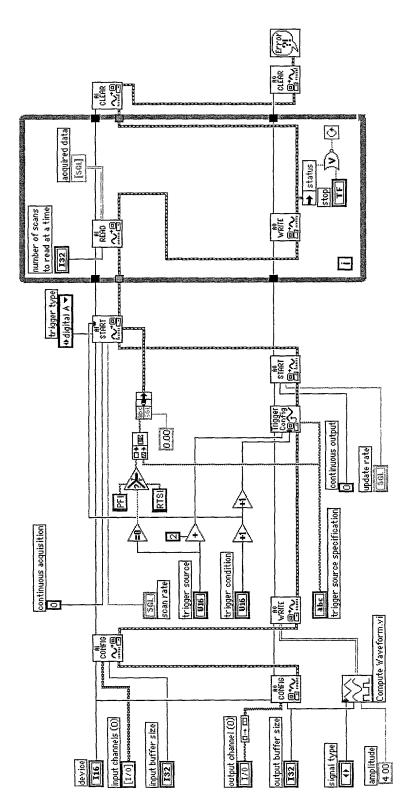
Simultaneous Buffered Analog Input And Single Point Digital Output With Single-Threaded Driver (Prior Art)

Figure 39A (Prior Art)



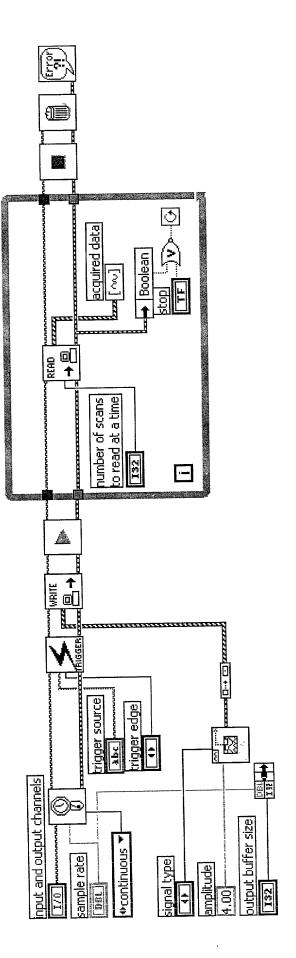
Simultaneous Buffered Analog Input And Single Point Digital Output With Multi-Threaded Driver

Figure 39B



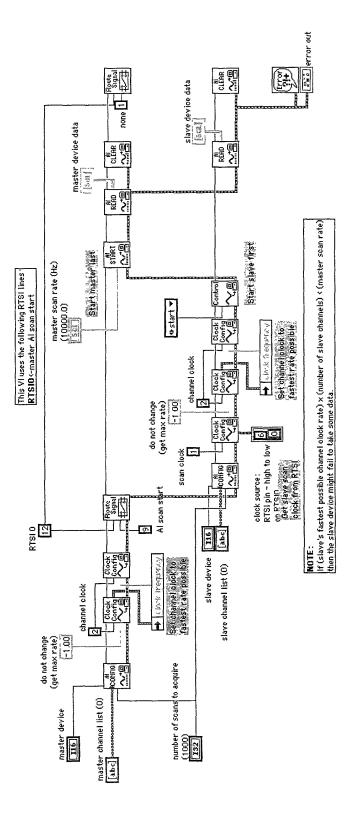
Simultaneous Triggered Buffered AI/AO (Prior Art)

Figure 40A



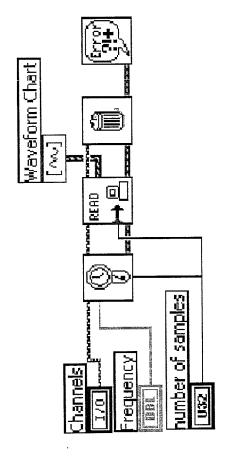
Simultaneous Triggered Buffered AI/AO

Figure 40B



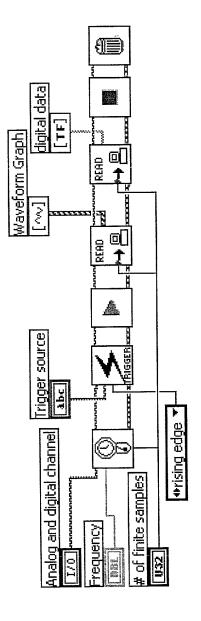
Sharing Scan Clock Across Two E-Series Devices (Prior Art)

Figure 41A



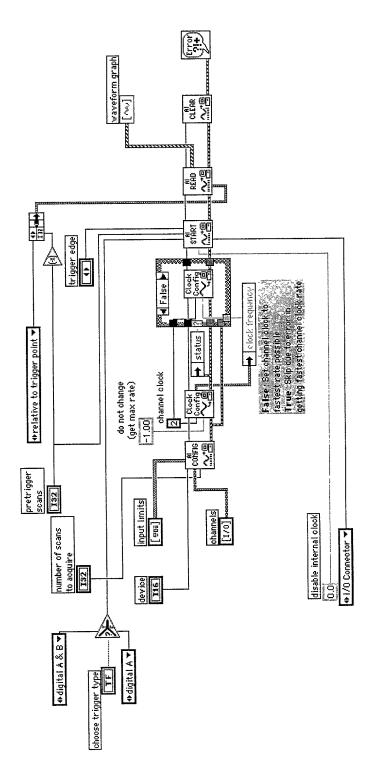
Sharing Scan Clock Across Two E-Series Devices

Figure 41B



Sharing Clock And Trigger, Buffered Al & DI

Figure 42



Acquire N Scans External Scan Clock Digital Trigger (Prior Art)

Figure 43A (Prior Art)

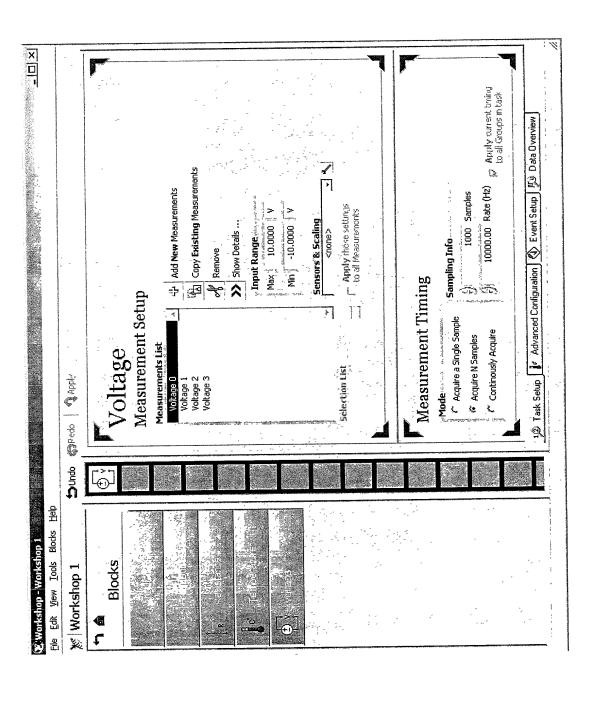
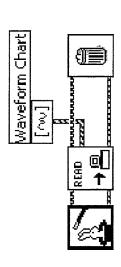


Figure 43B

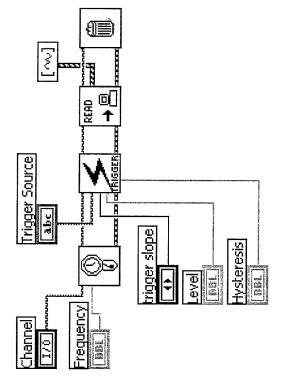
(E.Workshop - Workshop I Elle Edit View Iools Blocks Help	X [] -
	Dundo (*Reula Apply
↑ ≜ Blocks	Advanced
	Configuration Setup The settings on this page allow you to tweak advanced configuration parameters for your measurements. Hold the mouse pointer over any object to learn more about what it does.
	Measurement Timings and the surement Data and the Default Control of Series of the Default Control of the surement Data and the sure
	II O.00 Rate (Hz)
	Clock 1,00 Rate (Hz) Post to the Internet (Defoult) Imebase URL dstp://licehost/Myklehlusta
- 74 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	- am,
	Trigger Type Condition Digital Rising Edge U.0.0 tovel Source PFI.0 U.10 Hystensis
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	Trigger Type Condition Trigger Type Condition Tring Levis Ause Source SW D 10 Hystelisis
* * * * * * * * * * * * * * * * * * * *	12 Task Setup 1 Advanced Configuration (12 Event Setup 173 Data Overview)

Figure 43C



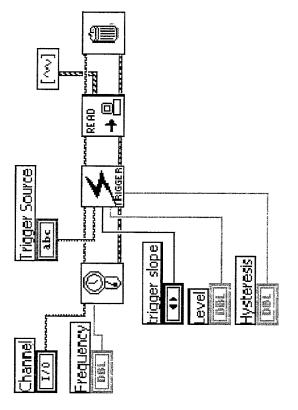
Acquire N Scans External Scan Clock Digital Trigger

Figure 43D



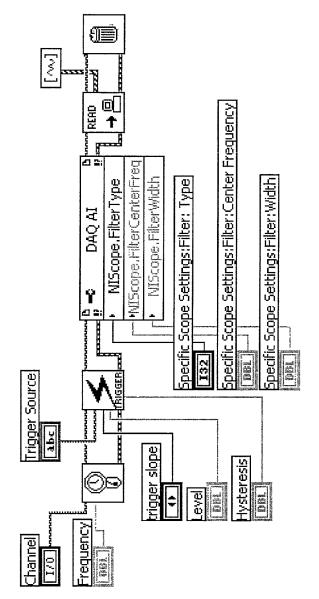
Triggered Acquisition With E-Series Device

Figure 44A



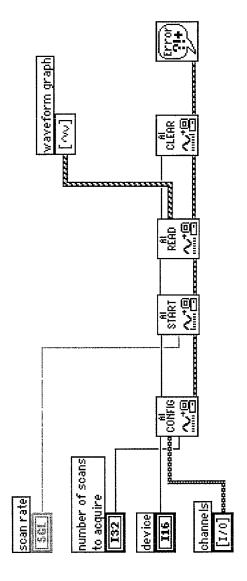
Triggered Acquisition With High Speed Digitizer

Figure 44B



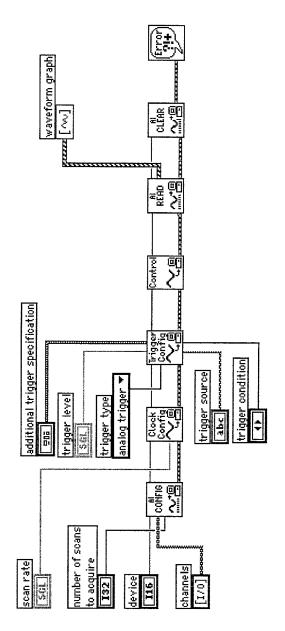
Triggered Acquisition With High Speed Digitizer With Filtering

Figure 44C



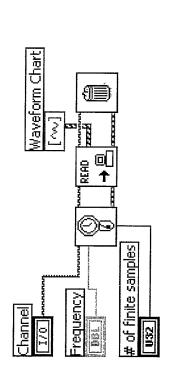
Intermediate Layer (Prior Art)

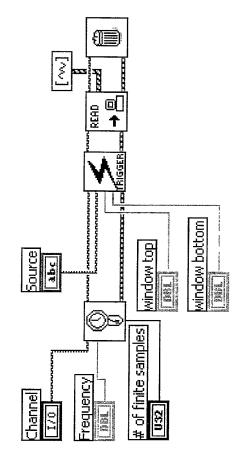
Figure 45A



Changes For Analog Window Triggering (Prior Art)

Figure 45B





Analog Window Triggering

Figure 45C